

Aerospace Engineering (14AEBS)

				Freshman Year			
Fall Semester			Credits	Spring Semester			Credits
CH	101	Chemistry, A Molecular Science ¹	3	CSC	113	Intro Comp MATLAB	3
CH	102	General Chemistry Lab ¹	1	GC	120	Foundations of Graphics	3
E	101	Introduction to Engr & Prob Solv ^{1,2}	1	MA	241	Calculus II ¹	4
E	115	Intro to Computing Environ ^{1,2}	1	PY	205	Physics for Engr & Sc I ¹	3
ENG	101	Academic Writing and Research ^{1,2}	4	PY	206	Physics for Engr & Sc I ¹ Lab	1
MA	141	Calculus I ¹	4	HES	***	Health & Exercise Studies	1
EC	205	Economics (or EC 201 or ARE 201)*	3	E	102	Engineering in the 21st Cent	2
HESF	10*	Fitness & Wellness	1				
Semester Total			18	Semester Total			17
				Sophomore Year			
Fall Semester			Credits	Spring Semester			Credits
MA	242	Calculus III	4	MA	341	Applied Differential Eq	3
MAE	206	Engineering Statics ^{2,3}	3	MAE	208	Engineering Dynamics ^{2,3}	3
MAE	250	Introduction to Aerospace Engineering	1	MAE	214	Solid Mechanics ^{2,3}	3
MAE	251	Aero Vehicle Perf ²	3	MAE	252	Aerodynamics I ²	3
PY	208	Physics for Engr & Sc II	3	MAE	253	Experimental Aerodynamics I	1
PY	209	Physics for Engr & Sc II Lab	1	***	***	GEP Requirement*	3
Semester Total			15	Semester Total			16
				Junior Year			
Fall Semester			Credits	Spring Semester			Credits
MAE	201	Thermal-Fluid Sciences ²	3	MAE	351	Aerodynamics II	3
MAE	315	Fundamentals of Vibrations	3	MAE	352	Experimental Aerodynamics II	1
MAE	371	Aero Struc I	3	***	***	Math Elective ⁷	3
MAE	372	Aero Vehicle Struc Lab	1	***	***	GEP Requirement*	3
		English Elective ⁴	3	MAE	***	Flight/Space Elective ⁶	3
***	***	Ethics (GEP Requirement*) ⁵	3	MAE	***	Structures Elective ⁶	3
Semester Total			16	Semester Total			16
				Senior Year			
Fall Semester			Credits	Spring Semester			Credits
MAE	405	Controls Lab	1	MAE	481	Aero Vehicle Design II	3
MAE	435	Princ of Automatic Controls	3	***	***	GEP Requirement*	3
MAE	451	Experimental Aerodynamics III	1	***	***	GEP Requirement*	3
MAE	480	Aero Vehicle Design I	3	MAE	***	Flight/Space Elective ⁶	3
MAE	***	Propulsion Elective ⁶	3	MAE	***	Technical Elective ⁶	3
MAE	***	Technical Elective ⁶	3				
Semester Total			14	Semester Total			15
Minimum Total Credit Hours Required for Graduation							127

Major/Program requirements and footnotes:

¹Courses required for Change of Degree Audit (CODA): CH 101, 102; MA 141, 241; PY 205, 206 must be completed with C or higher.

²Minimum grade of C-, E 115 requires satisfactory completion (S).

³Students must have a 2.5 GPA to enroll in this course.

⁴ENG 331 Comm Engr & Technology or other approved course.

⁵Select from IDS 201, STS 302, STS 304, STS 320, PHI 214, PHI/STS 325 or PHI 375

⁶**Flight/Space** (6 credit hours) MAE 457 Flight Stability & Control and MAE 467 Intro to Space Flight; **Structures** (3 credit hours) Select either MAE 472 Aero Structures II or MAE 430 Applied Finite Element; **Propulsion** (3 credit hours) Select either MAE 458 Propulsion or MAE 459 Rocket Propulsion;

Open (6 credit hours) Select from approved lists: <https://www.mae.ncsu.edu/academics/undergraduate-programs/electives/>

⁷Math Elective (3 credit hours) Select either MA 305, MA 405, ST 305, ST 312, ST 370, ST 371, ST 372 or other approved course.

*General Education Program (GEP) requirements and GEP Footnotes:

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://oucc.ncsu.edu/gep-courses>.

Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list.

Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose 3 credits from the University approved GEP Social Sciences course list in a discipline other than Economics.

Economics 205 (or EC 201 or ARE 201), taken as part of the Major requirements, satisfies 3 credit hours needed to fulfill the GEP Social Sciences requirement.

Health and Exercise Studies (2 credit hours – must include one HESF 100-level course and one additional HES course)

Choose from the University approved GEP Health and Exercise Studies course list.

Additional Breadth - (3 credit hours to be selected from the following University approved GEP course lists)

Choose from the Humanities/Social Sciences/Visual and Performing Arts

Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list.

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite.

J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite.

K. Foreign Language proficiency

Proficiency at the FL_102 level is required for graduation.